

EXECUTIVE SUMMARY

Weston Solutions, Inc. (WESTON[®]) has prepared this Draft Remedial Investigation (RI) Report as part of the requirements of Contract Number 99-0017-AN with the Arizona Department of Environmental Quality (ADEQ), Task Assignment 99-0148. The purpose of the Work Assignment is to complete the RI of the West Central Phoenix (WCP) East Grand Avenue Water Quality Assurance Revolving Fund (WQARF) Site. The RI report summarizes previous environmental investigations as well as the current RI activities conducted at the Site and more specifically at the former Van Waters & Rogers (VW&R) facility. Although there are other apparent sources of contamination within the WCP East Grand Avenue WQARF Site, the VW&R facility is the primary source of contamination at the Site. As part of the RI, a Land and Water Use Report and an Aquifer Test Report, were also prepared. These reports are presented as appendices to the RI.

VW&R operated at West Osborn Road from 1957 to 1970. Operations included warehousing and distribution of industrial and agricultural chemical products, upholstery supplies, and laundry and dry cleaning supplies. Repackaging of the following compounds has been documented to have occurred at the facility: ferric chloride, hydrochloric acid, sulfuric acid, caustic soda, antifreeze, acetone, methylethyl ketone, aqueous ammonia, chloroethene (or vinyl chloride), and trichloroethene (TCE). An additional five compounds of unknown identity were also repackaged at the facility. Vopak, the owner of VW&R, has stated that tetrachloroethene (PCE) might have been one of these unidentified compounds (Vopak, 2000).

Previous investigations of the VW&R facility included soil-gas surveys, surficial and sub-surface soil sampling, and the installation of six groundwater monitor wells. The current RI generated additional data on the nature and extent of soil and groundwater contamination beneath the VW&R facility and in the WCP East Grand Avenue WQARF Site. WESTON conducted the current RI activities in four Phases: Phase III, Phase IV, Phase V and Phase VI.

- Phase III activities included a vadose zone investigation (10 soil borings) on the VW&R facility, the installation of eight wells, and sampling of upgradient and downgradient

monitor wells (Groundwater Sampling Rounds 1 through 6). Phase III activities were conducted from September 1999 through December 2000.

- Phase IV of the investigation included installation of nine additional groundwater monitor wells upgradient and downgradient of the VW&R facility. The new wells were added to the monitor well network and all were sampled during four separate events (Rounds 7 through 10). In May 2001, WESTON conducted step drawdown tests on monitor wells WCP-28 and WCP-29 and a constant rate pumping test on monitor well WCP-29. This phase of the investigation was conducted from January 2001 through June 2001.
- Phase V activities included the installation of seven groundwater monitor wells. These wells were added to the monitoring network and sampled during Rounds 11 and 13. Groundwater samples were collected from select wells during Round 12 using both the passive diffusion bag (PDB) sample collection method and the pump discharge sample collection method. This phase of the investigation was conducted from July 2 through July 27, 2001.
- Phase VI activities included the installation of seven additional groundwater monitor wells. These wells were added to the monitoring network and sampled during Round 15. A limited number of the newly installed wells were sampled during Round 14. Phase VI activities occurred in November 2001 through February 2002.

Based on data collected during previous investigations and the current RI, the contaminants of concern for the WCP East Grand Avenue WQARF Site are PCE, TCE, and 1,1-dichloroethene (1,1-DCE). The distribution of contaminant concentrations in soil-gas, soil, and groundwater indicates an apparent source area near and under the former building foundation on the VW&R facility. Information obtained from VW&R indicated that areas to the west and east of the former building foundation were used for bulk product repackaging and that rinsate generated during the cleaning of the transfer hoses used in the repackaging process was routinely poured onto asphalt in these areas.

Soil sampling analytical results confirmed the presence of PCE, TCE, and 1,1-DCE beneath the facility; however, analytical results for soil samples collected from off-site borings were below the method detection limit. The highest concentrations of VOCs detected in on-site soil borings were found in fine-grained zones underlying sandy units occurring at approximately 56 feet below ground surface (bgs) to 71 feet bgs and in the unsaturated zone directly above the water

table. Due to declining groundwater elevations in the area, it appears that contaminants in the groundwater are being retained in sediments in the unsaturated zone directly above the water table. Detectable concentrations of the contaminants of concern in soil did not exceed their respective Arizona Soil Remediation Levels (SRLs) or minimum Groundwater Protection Levels (GPLs).

TCE has been detected at concentrations above the Arizona Water Quality Standard/Maximum Contaminant Level (AWQS/MCL) in monitor well WCP-94, which is approximately 2,800 feet downgradient from the VW&R facility. PCE and 1,1-DCE have been detected at concentrations exceeding the AWQS/MCLs in monitor wells located up to 1,200 feet downgradient from the facility. Observed concentrations of the contaminants of concern in groundwater are highest in monitor wells located on the VW&R facility (WCP-16, WCP-17, and WCP-93) and downgradient (WCP-30, WCP-87, and WCP-88) from the facility. TCE has been detected in minor concentrations in groundwater samples collected from monitor wells located upgradient from the VW&R facility. At this time, there is insufficient data to determine the source for the upgradient occurrences of TCE, although an additional contaminant source may be present.

Based on Hydropunch[®] data and data from the deep well installed as part of the RI, the vertical extent of groundwater contamination appears to be within the range of 152 feet bgs and 235 feet bgs. Analytical results from groundwater samples collected from WCP-48 at an approximate depth of 235 feet bgs indicate that only 1,1-DCE is present at that depth. Concentrations of 1,1-DCE in WCP-48 were below the MCL of 7 µg/L. Further characterization of the vertical extent of groundwater contamination will be addressed during the Feasibility Study (FS), if needed, based on the remedy selection.

Vertical stratification of contaminants within the screened interval of shallow wells was indicated based on analytical results obtained from the PDB samplers. Analytical results of samples collected closer to the source area indicated concentrations were higher near the groundwater-vadose zone interface than in the deeper portion of the screened interval.

Contaminant concentrations in PDB samples increased with depth in wells farther from the center of the VW&R facility.